

In The Claims:

1. (Currently amended) A method of providing improved quality of service over a series of related messages exchanged between computers in a networking environment, comprising:

determining one or more transactional quality of service ("TQoS") values to be applied to the related messages;

using the determined TQoS values when transmitting at least one of the related messages for delivery to a particular one of the computers, wherein the particular computer is a client computer;

annotating selected ones of the related messages with information reflecting the determined TQoS values; and

transmitting the annotated ones of the related messages with the information reflecting the determined TQoS values from a server computer to the client computer; to the particular computer

receiving the transmitted annotated messages at the client computer; and

transmitting the TQoS values from the client computer to the server computer with subsequent ones of the related messages.

2. (Original) The method according to claim 1, wherein one of the TQoS values is a transmission priority value to be used when transmitting the annotated messages.

3. (Original) The method according to claim 1, wherein one of the TQoS values is available bandwidth information pertaining to a network connection to the particular computer.

4. (Previously presented) The method according to claim 1, further comprising storing the determined TQoS values for use when transmitting subsequent ones of the related messages to the particular computer.

5. (Canceled).

6. (Currently amended) The method according to ~~claim 5~~ claim 1, wherein:
the annotated messages transmitted from the server computer to the client computer
comprise an object reference that is annotated to carry the TQoS values; and
transmitting the TQoS values from the client computer to the server computer with
subsequent ones of the related messages comprises automatically returning the TQoS values to
the server computer with subsequent ones of the related messages based on the annotation of the
object reference in a related message that is received from the server computer.

7. (Original) The method according to claim 1, wherein at least one of the annotated
messages is a response that serves a Web page to the particular computer.

8. (Original) The method according to claim 1, wherein at least one of the annotated
messages is a request from the particular computer for a Web page.

9. (Original) The method according to claim 1, wherein at least one of the annotated
messages is a request from the particular computer for a Web object.

10. (Currently amended) The method according to ~~claim 5~~ claim 1, wherein at least
one of the annotated messages is a response that serves a Web page to the particular computer
and wherein at least one of the subsequent ones of the related messages is a request for
information referenced by the Web page.

11. (Currently amended) The method according to ~~claim 5~~ claim 1, wherein at least
one of the annotated messages is a response that serves a Web page to the particular computer
and wherein at least one of the subsequent ones of the related messages is a request for

information selected from the Web page by a user of the particular computer.

12. (Previously presented) The method according to claim 1, wherein using the determined TQoS values when transmitting at least one of the related messages for delivery to a particular one of the computers further comprises using the determined TQoS values to set markings in a network layer header of the transmitted annotated messages.

13. (Previously presented) The method according to claim 3, further comprising enforcing bandwidth allocation using the available bandwidth information as the at least one transmitted message is transmitted through the networking environment.

14. (Previously presented) The method according to claim 2, further comprising using the transmission priority value to prioritize the transmission of the at least one transmitted message through the networking environment.

15. (Previously presented) The method according to claim 4, wherein storing the determined TQoS values for use when transmitting subsequent ones of the related messages to the particular computer comprises storing the determined TQoS values in a server computer.

16. (Previously presented) The method according to claim 2, wherein annotating selected ones of the related messages with information reflecting the determined TQoS values further comprises storing the information reflecting the determined TQoS values as part of a routing token in the annotated messages.

17. (Original) The method according to claim 16, wherein the routing token is used to modify a Uniform Resource Locator from a header of selected ones of the related messages.

18. (Previously presented) The method according to claim 17, wherein the routing

token further comprises information enabling identification of the particular computer and another computer which performs the transmitting, as well as identification of a storage area used to store the determined TQOS values for the related messages.

19. (Currently amended) A system for providing improved quality of service over a series of related messages exchanged between computers in a networking environment, comprising:

means for determining one or more transactional quality of service ("TQoS") values to be applied to the related messages;

means for using the determined TQoS values when transmitting at least one of the related messages for delivery to a particular one of the computers, wherein the particular computer is a client computer;

means for annotating selected ones of the related messages with information reflecting the determined TQoS values; and

means for transmitting the annotated ones of the related messages with the information reflecting the determined TQoS values from a server computer to the client computer; to the particular computer

means for receiving the transmitted annotated messages at the client computer; and

means for transmitting the TQoS values from the client computer to the server computer with subsequent ones of the related messages.

20. (Original) The system according to claim 19, wherein the TQoS values comprise one or more of (1) a transmission priority value to be used when transmitting the annotated messages and (2) available bandwidth information pertaining to a network connection to the particular computer.

21. (Original) The system according to claim 19, further comprising means for storing the determined TQoS values for use when transmitting subsequent ones of the related messages

to the particular computer.

22. (Canceled).

23. (Currently amended) The system according to ~~claim 22~~ claim 19, wherein the annotated messages transmitted from the server computer to the client computer comprises an object reference that is annotated to carry the TQoS values, and wherein the means for transmitting the TQoS values from the client computer to the server computer is configured to automatically return the TQoS values to the server computer with subsequent ones of the related messages based on the annotation of the object reference.

24. (Original) The system according to claim 19, wherein at least one of the annotated messages is a response that serves a Web page to the particular computer, a request from the particular computer for a Web page, or a request from the particular computer for a Web object.

25. (Currently amended) The system according to ~~claim 22~~ claim 19, wherein at least one of the annotated messages is a response that serves a Web page to the particular computer and wherein at least one of the subsequent ones of the related messages is a request for information referenced by the Web page.

26. (Currently amended) The system according to ~~claim 22~~ claim 19, wherein at least one of the annotated messages is a response that serves a Web page to the particular computer and wherein at least one of the subsequent ones of the related messages is a request for information selected from the served Web page by a user of the particular computer.

27. (Original) The system according to claim 19, wherein the means for using the determined TQoS values further comprises using the determined TQoS values to set markings in a network layer header of the transmitted annotated messages.

28. (Original) The system according to claim 20, further comprising means for enforcing bandwidth allocation using the available bandwidth information as the at least one transmitted message is transmitted through the networking environment.

29. (Original) The system according to claim 20, further comprising means for using the transmission priority value to prioritize the transmission of the at least one transmitted message through the networking environment.

30. (Original) The system according to claim 21, wherein the means for storing stores the determined TQoS values in a server computer.

31. (Original) The system according to claim 20, wherein the means for annotating further comprises means for storing the information reflecting the determined TQoS values as part of a routing token in the annotated messages.

32. (Original) The system according to claim 31, wherein the routing token is used to modify a Uniform Resource Locator from a header of selected ones of the related messages.

33. (Original) The system according to claim 32, wherein the routing token further comprises information enabling identification of the particular computer and another computer which performs the means for transmitting, as well as identification of a storage area used to store the determined TQoS values for the related messages.

34. (Currently amended) The system according to ~~claim 22~~ claim 19, wherein: the TQoS values comprise at least (1) a transmission priority value to be used when transmitting the annotated messages and (2) available bandwidth information pertaining to a network connection to the particular computer; and

at least one of the annotated messages is a response that serves a Web object to the particular computer from a network cache; and

wherein the means for using the determined TQoS values further comprises using the determined TQoS values, by the network cache, to prioritize transmission of the response that serves the Web object and to enforce bandwidth allocation using the available bandwidth information as the response is transmitted.

35-36. (Canceled).

37. (Currently amended) A computer program product for providing improved quality of service over a series of related messages exchanged between computers in a networking environment, the computer program product embodied on one or more computer-readable media and comprising:

computer-readable program code that is configured to determine one or more transactional quality of service ("TQoS") values to be applied to the related messages;

computer-readable program code that is configured to use the determined TQoS values when transmitting at least one of the related messages for delivery to a particular one of the computers, wherein the particular computer is a client computer; and

computer-readable program code that is configured to annotate selected ones of the related messages with information reflecting the determined TQoS values; and

computer-readable program code that is configured to transmit the annotated ones of the related messages with the information reflecting the determined TQoS values from a server computer to the client computer; to the particular computer

computer-readable program code that is configured to receive the transmitted annotated messages at the client computer; and

computer-readable program code that is configured to transmit the TQoS values from the client computer to the server computer with subsequent ones of the related messages.

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38. (Original) The computer program product according to claim 37, wherein the TQoS values comprise one or more of (1) a transmission priority value to be used when transmitting the annotated messages and (2) available bandwidth information pertaining to a network connection to the particular computer.

39. (Currently amended) The computer program product according to claim 37, further comprising computer-readable program code ~~means for storing that is configured to store~~ the determined TQoS values for use when transmitting subsequent ones of the related messages to the particular computer.

40. (Canceled).

41. (Currently Amended) The computer program product according to ~~claim 40~~ claim 37, wherein the annotated messages transmitted from the server computer to the client computer include an object reference that is annotated to carry the TQoS values, and wherein the computer-readable program code that is configured to transmit the TQoS values from the client computer to the server computer with subsequent ones of the related messages is configured to automatically return the TQoS values to the server computer with subsequent ones of the related messages based on the annotation of the object reference in a related message that is received from the server computer.

42. (Original) The computer program product according to claim 37, wherein at least one of the annotated messages is a response that serves a Web page to the particular computer, a request from the particular computer for a Web page, or a request from the particular computer for a Web object.

43. (Currently Amended) The computer program product according to ~~claim 40~~ claim 37, wherein at least one of the annotated messages is a response that serves a Web page to the

particular computer and wherein at least one of the subsequent ones of the related messages is a request for information referenced by the Web page.

44. (Currently Amended) The computer program product according to ~~claim 40 claim 37~~, wherein at least one of the annotated messages is a response that serves a Web page to the particular computer and wherein at least one of the subsequent ones of the related messages is a request for information selected from the served Web page by a user of the particular computer.

45. (Previously presented) The computer program product according to claim 37, wherein the computer-readable program code that is configured to use the determined TQoS values is further configured to use the determined TQoS values to set markings in a network layer header of the transmitted annotated messages.

46. (Previously presented) The computer program product according to claim 38, further comprising computer-readable program code that is configured to enforce bandwidth allocation using the available bandwidth information as the at least one transmitted message is transmitted through the networking environment.

47. (Previously presented) The computer program product according to claim 38, further comprising computer-readable program code that is configured to use the transmission priority value to prioritize the transmission of the at least one transmitted message through the networking environment.

48. (Previously presented) The computer program product according to claim 39, wherein the computer-readable program code that is configured to store the determined TQoS values in a server computer.

49. (Previously presented) The computer program product according to claim 38,

wherein the computer-readable program code that is configured to annotate further comprises computer-readable program code that is configured to store the information reflecting the determined TQoS values as part of a routing token in the annotated messages.

50. (Original) The computer program product according to claim 49, wherein the routing token is used to modify a Uniform Resource Locator from a header of selected ones of the related messages.

51. (Previously presented) The computer program product according to claim 48, wherein the routing token further comprises information enabling identification of the particular computer and another computer which performs the computer-readable program code that is configured to transmit, as well as identification of a storage area used to store the determined TQOS values for the related messages.

52. (Currently amended) The method according to ~~claim 5~~ claim 1, further comprising storing the TQoS values as one or more cookies on the client computer.

53. (Previously presented) The method according to claim 52, wherein transmitting the TQoS values from the client computer to the server computer with subsequent ones of the related messages comprises determining the TQoS values to be transmitted from the client computer based on the stored one or more cookies on the client computer.

54. (Currently amended) The system according to ~~claim 22~~ claim 19, further comprising means for storing the TQoS values received at the client computer as one or more cookies on the client computer.

55. (Previously presented) The system according to claim 54, wherein the means for transmitting the TQoS values from the client computer to the server computer with subsequent

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ones of the related messages comprises means for determining the TQoS values to be transmitted from the client computer based on the stored one or more cookies on the client computer.

56. (Currently amended) The computer program product according to ~~claim 40~~ claim 37, further comprising computer-readable program code that is configured to store the TQoS values that are received at the client computer as one or more cookies on the client computer.

57. (Previously presented) The computer program product according to claim 56, wherein the computer-readable program code that is configured to transmit the TQoS values from the client computer to the server computer with subsequent ones of the related messages is further configured to determine the TQoS values to be transmitted from the client computer based on the stored one or more cookies on the client computer.